

## WHAT IS CLAIMED IS:

- 1/ A protection device for a battery assembly comprising at least two electrochemical cell modules (1-i), connected in series and each comprising at least one electrochemical cell (2), the device being characterized in that it comprises as many primary protection blocks (5-i) as electrochemical cell modules (1-i), each block (5-i) being connected in parallel with one of said electrochemical cell modules (1-i), and comprising at least one 1S type electronic protection circuit (6), and a diode (7) connected in parallel with said 1S electronic circuit (6) and upstream therefrom relative to the current flow direction.
- 15 2/ A protection device according to claim 1, characterized in that said battery assembly comprises three electrochemical cell modules (1-i), and the device comprises three primary protection blocks (5-i) each connected in parallel with a respective one of said electrochemical cell modules.
- 20 3/ A protection device according to claim 1, characterized in that said battery assembly comprises four electrochemical cell modules (1-i), and the device comprises four primary protection blocks (5-i) each connected in parallel with a respective one of said electrochemical cell modules.
- 25 4/ A protection device according to claim 1, characterized in that it includes a secondary protection block (9-i) connected in parallel with one of said primary protection blocks (5-i), and comprising at least one 1S type electronic protection circuit (6) and a diode (7) connected in parallel with said 1S electronic circuit and upstream therefrom relative to the current flow direction.

5/ A protection device according to claim 1,  
characterized in that each primary protection block (5-i)  
includes a main switch device (Q1) connected in parallel  
with at least one auxiliary switch device (Q1).

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6/ A protection device according to claim 1,  
characterized in that each primary protection block (5-i)  
and/or each secondary protection block (9-i) includes a  
fuse (8) connected between an output of said protection  
10 circuit (6) and an output of said diode (7).

7/ A protection device according to claim 6,  
characterized in that each fuse (8) is a thermofuse.

15 8/ A protection device according to claim 4,  
characterized in that at least some of said secondary  
protection blocks (9-i) are identical to the respective  
primary protection blocks (5-i) with which they are  
connected in parallel.

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9/ A protection device according to claim 1,  
characterized in that it includes an auxiliary diode (10)  
connected in parallel between an input of the primary  
protection block (5-1) associated with the  
25 electrochemical cell module (1-1) placed furthest  
upstream relative to the current flow direction, and an  
output of the primary protection block (5-4) associated  
with the electrochemical cell module (1-4) placed  
furthest downstream relative to said current flow  
30 direction.

10/ A battery assembly comprising at least two  
electrochemical cell modules (1-i) connected in series  
and each comprising at least one electrochemical cell  
35 (2), the battery assembly being characterized in that it  
includes a device according to claim 1.

11/ A battery assembly according to claim 10,  
characterized in that each electrochemical cell (2) is  
selected from the group comprising at least lithium  
cells, and in particular lithium-ion (Li-ion) cells and  
5 polymer cells.